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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/528,027	06/20/2012	STEPHEN R. BURGESS	WLJ.192	2772

20987 7590 01/25/2017
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EXAMINER

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ART UNIT	PAPER NUMBER
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1756

NOTIFICATION DATE	DELIVERY MODE
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01/25/2017

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte STEPHEN R. BURGESS¹

Appeal 2015-007549
Application 13/528,027
Technology Center 1700

Before MICHAEL P. COLAIANNI, CHRISTOPHER L. OGDEN, and
CHRISTOPHER C. KENNEDY, *Administrative Patent Judges*.

KENNEDY, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's decision to reject claims 1–3 and 10. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

BACKGROUND

The subject matter on appeal relates to a method of supporting a workpiece during physical vapor deposition. *E.g.*, Spec. 1:5–7; Claim 1.

¹ According to the Appellant, the real parties in interest is SPTS TECHNOLOGIES LIMITED. App. Br. 3.

Claim 1 is reproduced below from page 26 (Claims Appendix) of the Appeal Brief:

1. A method of supporting a workpiece during Physical Vapour Deposition (PVD), the method including:
 - (a) providing an aluminium [sic] support having a support surface coated with a heat absorbing coating of a metal oxide film, and placing the workpiece on the metal oxide film so as to be supported by the support surface of the support;
 - (b) cooling the support to 100°C; and
 - (c) executing PVD, to thereby deposit material on the workpiece, while the cooling is being carried out such that, with the cooling, the workpiece temperature is between 350°C and 450°C during the depositing of the material on the workpiece.

ANALYSIS

Claims 1–3 and 10 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Cooke et al. (US 5,183,402, issued Feb. 2, 1993) in view of Choi et al. (US 2006/0032586 A1, published Feb. 16, 2006).²

The Examiner finds, *inter alia*, that Cooke teaches a method similar to that of claim 1 but that Cooke does not specifically teach cooling the workpiece support to 100°C. *See* Ans. 3–4. The Examiner, however, determines that the temperature of the support is a result-effective variable and that a person of ordinary skill in the art would have known to adjust the temperature of the support essentially to any temperature necessary,

² In the Examiner's Answer, the Examiner withdraws a rejection of claims 1–3 and 10 under 35 U.S.C. § 103(a) as unpatentable over Choi. Ans. 5.

including 100°C, to maintain the temperature of the workpiece at the desired level. *See id.*

The Appellant argues that, because Cooke teaches controlling the temperature of the workpiece at temperatures ranging from 200–650°C, it would never be necessary or desirable to cool Cooke’s workpiece support to a temperature of 100°C. *See App. Br.* 21–22. In particular, the Appellant focuses on Cooke’s teaching that “the temperature of the workpiece approximates the temperature of the platen”³ and argues that Cooke “is clearly teaching that the temperature of the platen 20 (workpiece support) will, during all phases of the process . . . be controlled to remain at a process temperature which is far above Appellant’s temperature of 100°C during PVD.” *Id.* at 21 (citing Cooke at 2:13–14).

On this record, we are persuaded by the Appellant’s argument. As an initial matter, we note that, in the Answer, the Examiner does not persuasively address Cooke’s teaching that “the temperature of the workpiece approximates the temperature of the platen.” *See Cooke* at 2:13–14. The Examiner gives a hypothetical in which the Examiner explains why a person of ordinary skill in the art might be motivated to cool the workpiece support, but the Examiner does not persuasively explain why, in the context of the portions of Cooke cited by the Appellant, a person of ordinary skill in the art would have been motivated to cool the support to 100°C during PVD deposition, while the workpiece temperature is maintained between 350°C and 450°C. *See Ans.* 7–8.

³ For purposes of this decision, we understand the terms “support” (or “workpiece support”) and “platen” to be synonyms.

In that regard, we note that Cooke appears to be concerned with increasing radiative heat transfer between the workpiece and the support, by increasing the emissivity and thermal conductivity of the platen, in order to maintain a uniform temperature distribution across the workpiece, based on the expectation that the workpiece and the support will be at similar temperatures. *See generally* Cooke cols. 1–2. However, the Appellant’s claim 1 requires at least a 250°C difference between the temperature of the workpiece and the temperature of the support. Cooke teaches a minimum workpiece temperature of 200°C and a preferred workpiece temperature range of 300–650°C. *Id.* at 4:13–16.

Assuming *arguendo* that Cooke suggests that workpiece support temperature is a result-effective variable and that Cooke would have motivated a person of ordinary skill to optimize that variable, it appears that Cooke would have motivated optimization within the approximate range of 200–650°C. *See id.* at 2:13–14, 4:13–16. The Examiner has not persuasively identified a motivation in Cooke to optimize the workpiece support beyond that temperature range, such as to a temperature of 100°C, as required by claim 1. *See In re Sebek*, 465 F.2d 904, 907 (CCPA 1972) (“Where, as here, the prior art disclosure suggests the outer limits of the range of suitable values, and that the optimum resides within that range, and where there are indications elsewhere that in fact the optimum should be sought within that range, the determination of optimum values outside that range may not be obvious.”); *cf. also In re Marshall*, 578 F.2d 301, 304 (CCPA 1978) (reversing obviousness determination where prior art taught or suggested a particular parameter as a result-effective variable for a different purpose or use). That is especially true in view of Cooke’s teaching that

“the temperature of the workpiece approximates the temperature of the platen,” Cooke at 2:13–14, which, as noted above, the Examiner does not persuasively address.

Accordingly, we must reverse the Examiner’s rejection of claim 1. Because the remaining claims on appeal also require cooling the support to 100°C, either directly or through claim dependency, and the Examiner’s rejection of those claims does not remedy the error identified above, we likewise must reverse the Examiner’s rejection of those claims.

CONCLUSION

We REVERSE the Examiner’s rejection of claims 1–3 and 10.

REVERSED